DOCUMENT RESUME

ED 264 119 SE 046 281

TITLE	Immigrant Scientists and Engineers: 1982-84. Detailed Tables and Charts. Surveys of Science Resources Series.
INSTITUTION	National Science Foundation, Washington, D.C. Div. of Science Resources Studies.
REPORT NO	NSF-85-326
PUB DATE	85
NOTE	38p.
PUB TYPE	Statistical Data (110)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	*Engineers; Higher Education; *Immigrants; *Mathematicians; Professional Personnel; *Scientists; *Social Scientists
IDENTIFIERS	National Science Foundation

ABSTRACT

Since 1966, the National Science Foundation (NSF) has monitored the annual inflows of scientists and engineers (SE) from abroad to provide information on levels and trends in scientist and engineering immigration and other related areas. This report provides data (in 6 charts and 10 statistical tables), which update previously published data, for fiscal years 1976-78 and 1982-84 (data for 1979-81 are not available). Charts summarize data on immigrant SE by type of admission (1966-84), adjustment-of-status immigrants as a proportion of total immigrants (1966-84), and SE admitted as immigrants in 1984, by region or birth, by region of intended United States residence and by age group. Data presented in the statistical tables include: immigration SE by field of specialization (1976-78 and 1982-84); immigrant SE by country or region of last permanent residence and major group (separate tables for 1982, 1983, and 1984); immigrant SE by country or region of birth and major group (separate tables for 1982, 1983, and 1984); migration patterns of SE who became immigrants in 1984; immigrant SE by state of intended residence and major group (1984); and immigrant SE by sex, age group, and region of last permanent residence (1984). (JN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED264119

immigrant scientists and engineers: 1982-84

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

✓ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

National Science Foundation

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

surveys of science resources series
national science foundation

detailed tables and charts

NSF 85-326

SE 046 281

related publications

Science Resources Studies Highlights

S/E Personnel

	NSF No.	Price
"Shortages Increase for Engineering Personnel in Industry"	85-307	-----
"Science and Engineering Jobs Grew Twice as Fast as Overall U.S. Employment with Industry Taking the Lead"	84-319	-----
"1982 Job Market for New Science and Engineering Graduates About the Same as that of Previous Year"	84-310	-----
"Industry Reports Shortages of Scientists and Engineers Down Substantially From 1982 to 1983"	84-303	-----
"Projected Employment Scenarios Show Possible Shortages in Some Engineering and Computer Specialties"	83-307	-----
"Growth in Science and Engineering Employment Accelerated in 1980 to 1981—But Demand May Have Slackened in 1982"	83-300	-----
"Labor Market Slackens for New Science and Engineering Graduates"	82-330	-----

Detailed Statistical Tables

S/E Personnel

	NSF No.	Price
Characteristics of Doctoral Scientists and Engineers in the United States: 1983	85-303	-----
U.S. Scientists and Engineers: 1982, Volume 1	84-321	-----
Characteristics of Recent Science/ Engineering Graduates: 1982	84-318	-----
Scientists and Engineers From Abroad: 1976-78	80-324	-----

Reports

S/E Personnel

	NSF No.	Price
Participation of Foreign Citizens in U.S. Science and Engineering:	85-315	-----
Projected Response of the Science, Engineering, and Technician Labor Market to Defense and Nondefense Needs: 1982-87	84-304	-----
Women and Minorities in Science and Engineering	84-300	
Science and Engineering Degrees: 1950-80. A Source Book	82-307	-----
Foreign Participation in U.S. Science and Engineering Higher Education and Labor Markets	81-316	-----
Occupational Mobility of Scientists and Engineers	80-317	$1.75

Composite

	NSF No.	Price
Science and Engineering Personnel: A National Overview	85-302	-----

[See inside back cover for Other Science Resources Publications.]

BEST COPY AVAILABLE

Telephonic Device for the Deaf

The National Science Foundation (NSF) has Telephonic Device for the Deaf (TDD) capability which enables individuals with hearing impairment to communicate with the Division of Personnel and Management for information relating to NSF programs, employment, or general information. This number is (202) 357-7492.

Availability of Publications

Those publications marked with a price should be obtained directly from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Where no price is listed single copies may be obtained gratis from the National Science Foundation, Washington, D.C. 20550.

Suggested Citation

Immigrant Scientists and Engineers: 1982-84 (NSF 85-326) (Washington, D.C., 1985).

BEST COPY AVAILABLE

contents

Page

General Notes iv

Sections:

A. Technical Notes 1
B. Charts 3
C. Statistical Tables 11

general notes

Since 1966, the National Science Foundation (NSF) has monitored the annual inflows of scientists and engineers from abroad. The NSF data collection effort on these personnel has several goals. Insofar as possible, NSF seeks to provide data to policymakers and researchers on:

(1) Levels and trends in scientist and engineer immigration;

(2) Characteristics of those from abroad; e.g., age, sex, field of specialization, and type of entry;

(3) Country of origin of these personnel (many immigrants born in one country reside elsewhere for a year or more before coming here);

(4) Numbers of scientists and engineers receiving certification from the U.S. Department of Labor (Labor) and entering the United States to work in shortage occupations.

The Immigration and Naturalization Service (INS) compiles information on all personnel who enter the United States from abroad, and NSF acquires these data for those classified as scientists and engineers. The data tabulations in this report, which update previously published data, cover fiscal years 1976-78, and 1982-84 (data for 1979-81 are not available).

As used in the tables in this report, the term "immigrant" refers to those allowed to stay permanently and obtain U.S. citizenship. The term "adjustment-of-status" refers to those admitted on a temporary basis for a specific purpose such as study and later became immigrants.

Requests for previously published data and additional information should be addressed to:

Joseph Gannon
Division of Science Resources Studies
National Science Foundation
Washington, D.C. 20550
(202) 634-4655

section a

technical notes

immigration regulations

The Immigration and Nationality Act of 1952 (the Act), as amended, is the basis of current U.S. immigration policy. Immigration for permanent residence in the United States is limited to 290,000 in any year with a maximum of 20,000 for any one country. The Act also provides for admission outside of these limitations of spouses of U.S. citizens and certain special immigrants such as refugees.

The Act also establishes a preference system for persons subject to limitations as follows:

(1) Unmarried sons and daughters of U.S. citizens and their children. Limited to 20 percent of annual world quota.

(2) Spouses, unmarried sons and daughters of permanent resident aliens, and their children. Limited to 26 percent of annual world quota plus unused from first preference.

(3) Members of the professions of exceptional ability in the sciences or arts and their spouses and children, limited to 10 percent of annual world quota.

(4) Married sons and daughters of U.S. citizens and their spouses and children limited to 10 percent of annual world quota plus those unused from higher preferences.

(5) Brothers and sisters of U.S. citizens and their spouses and children limited to 24 percent of annual world quota plus those unused from higher preferences.

(6) Workers in skilled or unskilled occupations in which laborers are in short supply in the United States and their spouses and children limited to 10 percent of annual world quota.

Nonpreference:
Qualified applicants not eligible for above preferences limited to number not used in other preferences.

The Act requires that aliens who seek to immigrate to the United States under the third, sixth, or nonpreference quotas must obtain a certificate from the Secretary of Labor to the effect that (a) there are not sufficient qualified domestic workers available to perform the proposed labor of the applicant; and, (b) the employment of the applicant will not adversely affect the wages and working conditions of similarly employed workers.

The Act permits certain aliens in the United States in other than lawful permanent residence, such as students on temporary visas, to acquire immigrant status administratively without having to obtain immigrant visas from a U.S. Consular abroad as usually required. In this report, such persons are designated "adjustment-of-status immigrants."

data comparability

Occupational information on immigration is not available for 1979-81. The figures shown on the charts of this report for those years are interpolations.

Professors and instructors are included in their fields of specialization for 1966-78. Such data are not available for 1983 and 1984. The number of immigrant science and engineering professors and instructors included in the tables and charts of this report for 1966-84 are as follows:

1966	'67	'68	'69	'70	'71	'72	'73	'74	'75
500	1,000	800	800	800	700	600	200	300	300

'76	'77	'78	'79	'80	'81	'82	'83	'84
300	200	400	NA	NA	NA	300	NA	NA

NOTE: NA - not available.

Throughout the tables and charts of this report, the term "other" within occupational groups includes scientists and engineers whose fields are not known, as well as the smaller fields which are not shown separately.

section b

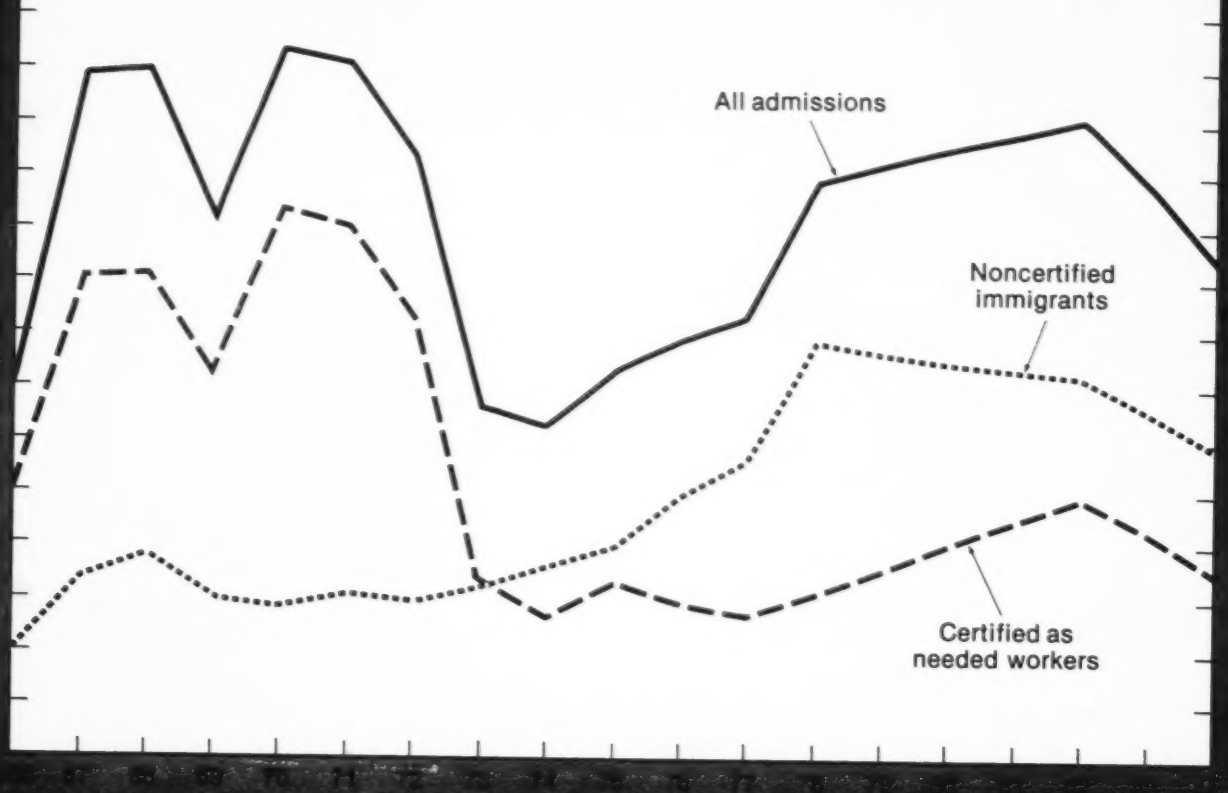
charts

page

B-1. Immigrant scientists and engineers by type of admission: 1966-84 5
B-2. Adjustment-of-status immigrants as proportion of total immigrants: 1966-84 6
B-3. Admissions of immigrant scientists and engineers by occupational group: 1984 7
B-4. Scientists and engineers admitted as immigrants in 1984, by region of birth 8
B-5. Scientists and engineers admitted as immigrants in 1984, by region of intended U.S. residence 9
B-6. Scientists and engineers admitted as immigrants in 1984, by age group 10

Immigrant scientists and engineers: 1966-84
(in thousands)

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Total	7.2	12.5	13.0	10.3	13.3	13.1	11.3	6.6	6.3	7.4	7.9	8.4	10.9	NA	NA	NA	12.2	10.6	9.5
Certified	NA	9.0	9.1	7.2	10.3	10.0	8.3	3.4	2.6	3.4	3.0	2.8	3.1	NA	NA	NA	5.0	4.4	3.5
Noncertified	NA	3.5	3.9	3.0	3.0	3.1	3.0	3.2	3.7	4.0	5.0	5.6	7.8	NA	NA	NA	7.2	6.2	6.0

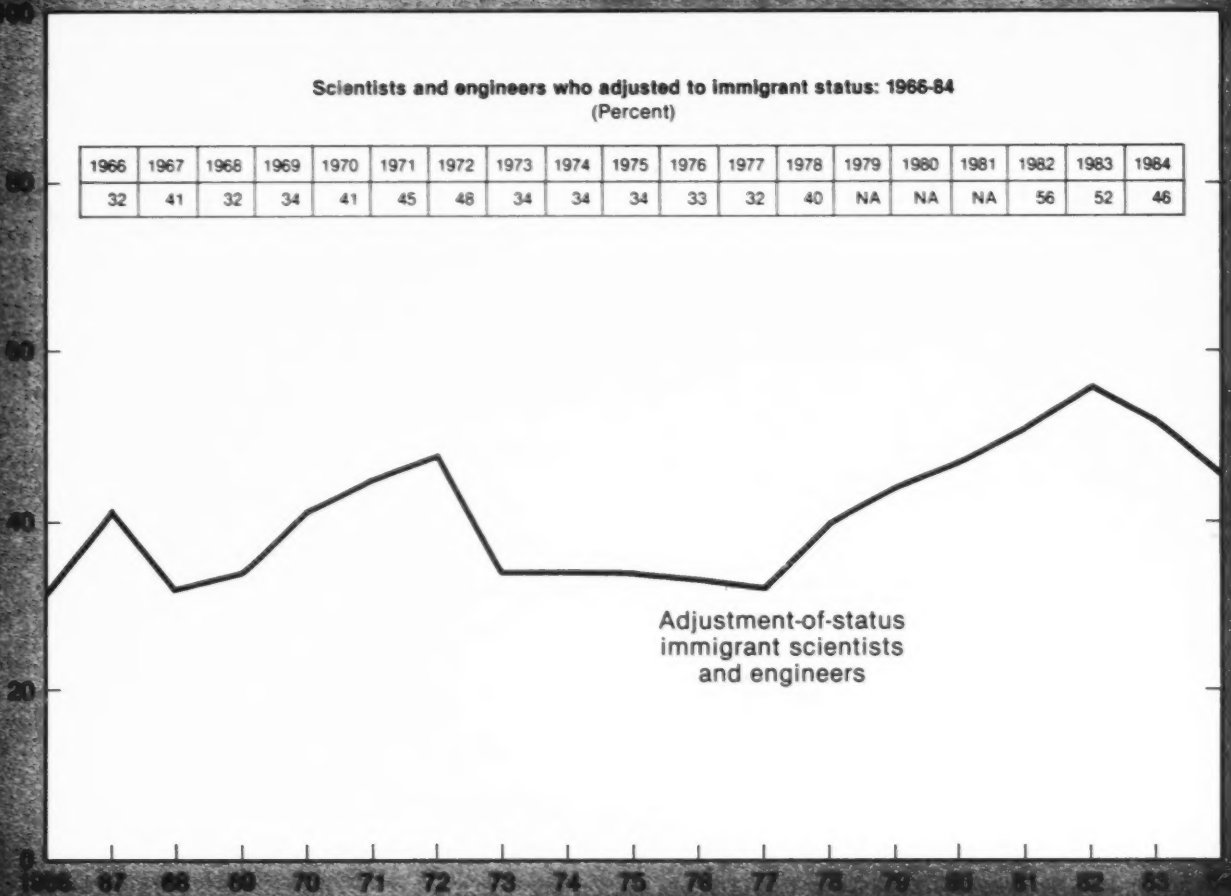


• Immigration of scientists and engineers rose sharply between 1966 and 1971 because of revisions in the law allowing greatly expanded entry from Asian countries. The sharp decline between 1971 and 1975 and the subsequent movements through 1984 reflect changes in regulations making immigration of persons seeking entry as professional and skilled workers dependent on U.S. labor market conditions.

(Total immigrant scientists and engineers = 100 percent)

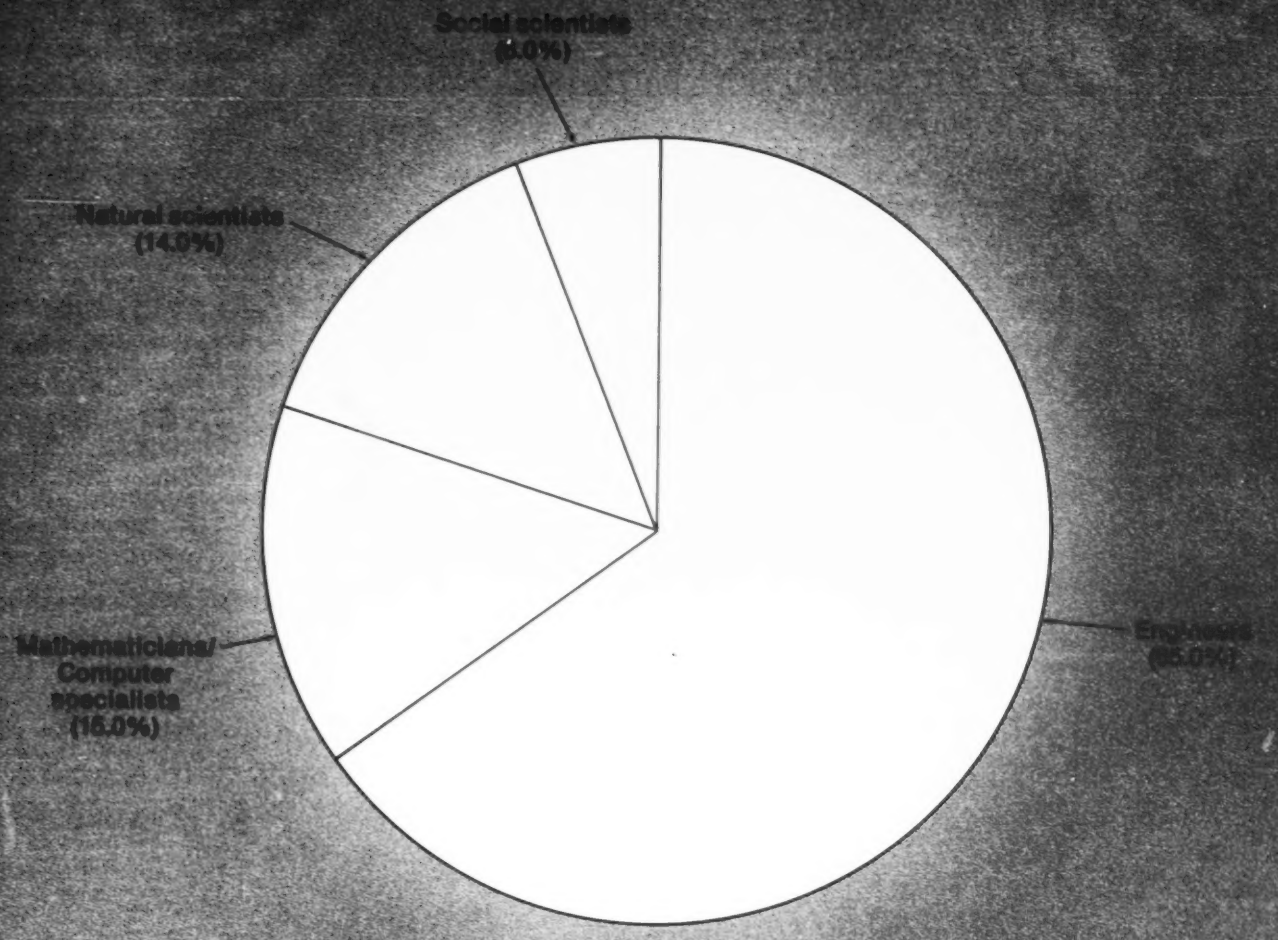
Scientists and engineers who adjusted to immigrant status: 1966-84
(Percent)

1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
32	41	32	34	41	45	48	34	34	34	33	32	40	NA	NA	NA	56	52	46



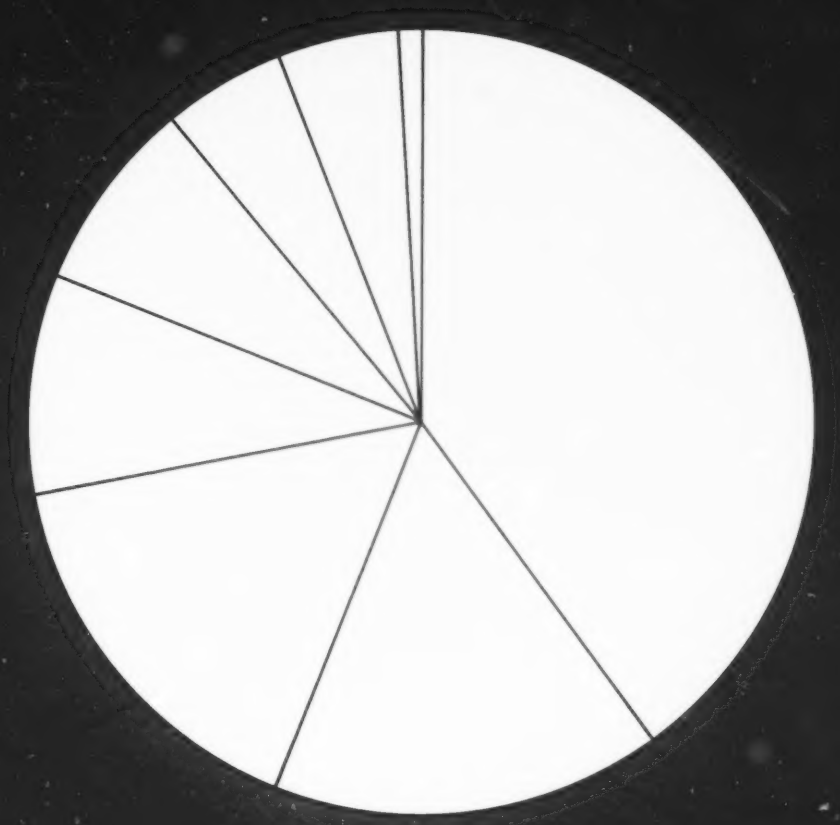
NOTE: NA = not available.
SOURCE: National Science Foundation, based on data of the Immigration and Naturalization Service, U.S. Department of Justice.

• The proportion of alien scientists and engineers whose status changed from nonimmigrant to immigrant (adjustment-of-status) increased between 1968 and 1972: U.S. law was amended to permit the backlog of Asians who already had entered the United States on temporary visas awaiting quota preferences to be admitted as immigrants. The levels of adjustment have increased since 1976 for three reasons: First, direct immigration of workers who had not obtained a job commitment in the United States has been restricted; second, there has been an increase in the pool of foreign science/engineering (S/E) students, many of whom seek to remain in the United States after graduation; and third, aliens from noncontiguous Western Hemisphere countries have been allowed for the first time to adjust their status.

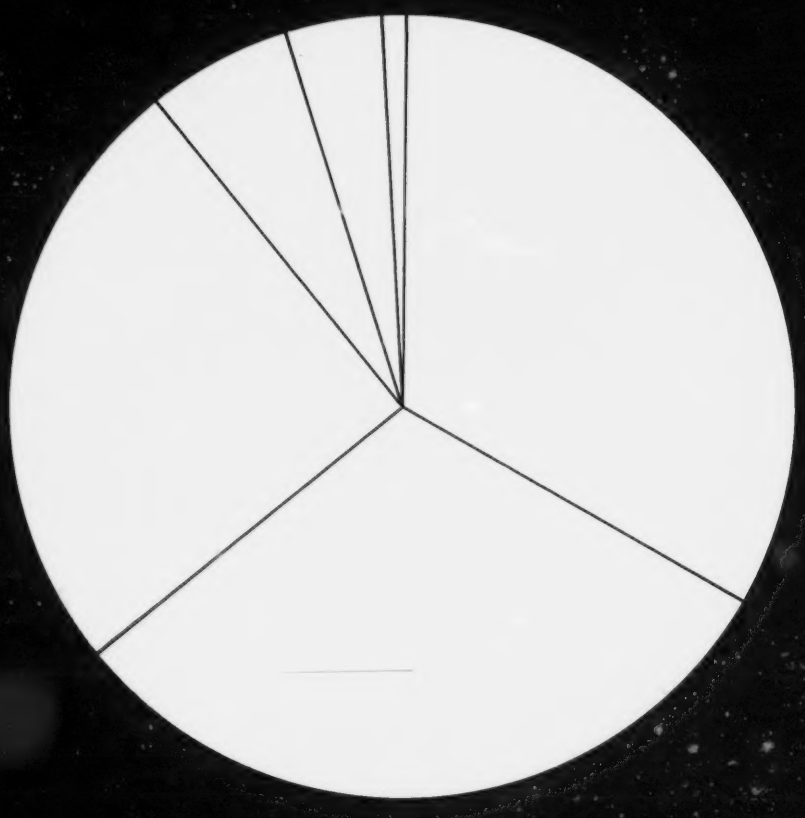


SOURCE: National Science Foundation, based on data of the Immigration and Naturalization Service, U.S. Department of Justice

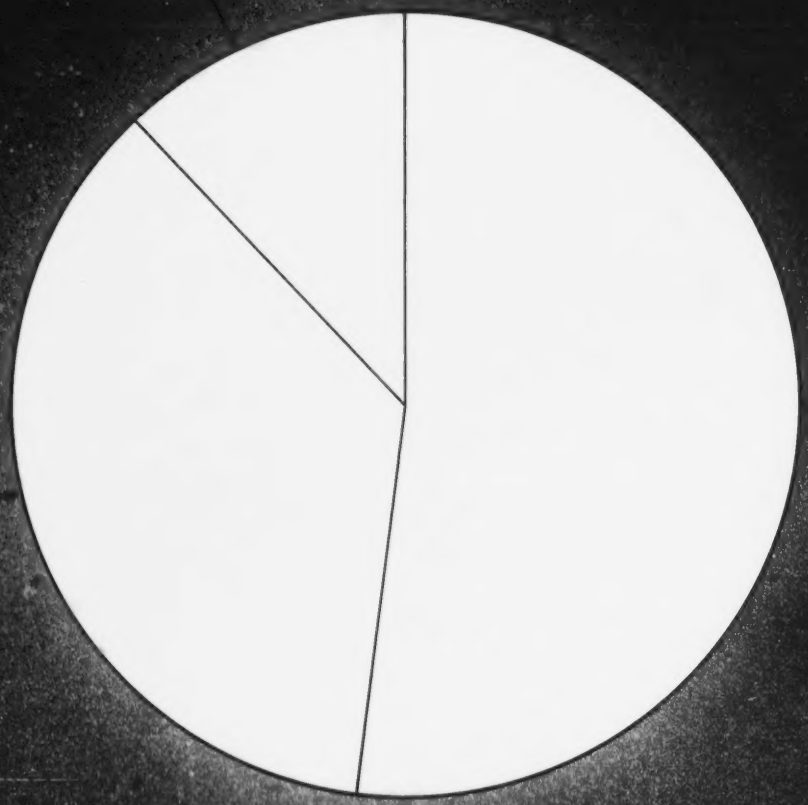
- The 1984 immigrant scientists and engineers were distributed by occupation in roughly the proportions as the United States scientist/engineer population.



• Changes in national immigration law in 1966 made it possible for many more Asians to become immigrants. Between 1966 and 1984, Asian-born scientists and engineers increased from less than 30 percent to nearly 60 percent of all immigrant scientists and engineers.



• The 1984 immigrants were much more likely to reside in the Pacific region than total employed U.S. scientists and engineers — 33 percent versus 18 percent.



SOURCE: National Science Foundation, based on data of Immigration and Naturalization Service, U.S. Department of Justice.

• Scientists and engineers admitted as immigrants in 1984 were younger than the U.S. stock of employed scientists and engineers — 36 percent were under 30 and only 12 percent were 45 or older. Twenty percent of the U.S. stock of scientists and engineers are under 30 and over one-third are 45 or older.

section c

statistical tables

page

C-1. Immigrant scientists and engineers by field of specialization: 1976-78 and 1982-84 13
C-2. Immigrant scientists and engineers by country or region of last permanent residence and major group: 1982 14
C-3. Immigrant scientists and engineers by country or region of last permanent residence and major group: 1983 16
C-4. Immigrant scientists and engineers by country or region of last permanent residence and major group: 1984 18
C-5. Immigrant scientists and engineers by country or region of birth and major group: 1982 20
C-6. Immigrant scientists and engineers by country or region of birth and major group: 1983 22
C-7. Immigrant scientists and engineers by country or region of birth and major group: 1984 24
C-8. Migration patterns of scientists and engineers who became immigrants in 1984 26
C-9. Immigrant scientists and engineers by State of intended residence and major group: 1984 28
C-10. Immigrant scientists and engineers by sex, age group, and region of last permanent residence: 1984 31

TABLE C-1 . Immigrant scientists and engineers by field of specialization: 1976-78 and 1982-84 1/

Field of specialization	1976	1977	1978	1982	1983	1984
Total	7,782	8,189	10,455	12,180	10,566	9,502
Engineers, total	5,146	5,191	6,762	7,877	6,794	6,110
Aeronautical	32	61	75	91	74	67
Chemical	446	470	481	394	338	304
Civil	697	543	704	750	645	580
Electrical/electronics	754	680	916	1,001	866	779
Industrial	190	205	263	286	243	219
Mechanical	823	676	811	910	782	703
Metallurgical/metallurgists	72	95	86	60	53	48
Mining and petroleum	86	130	135	173	148	133
Sales	46	59	60	56	53	48
Other	2,000	2,272	3,231	4,229	3,655	3,286
Natural scientists	1,737	1,983	2,320	1,882	1,627	1,463
Agricultural scientists	241	314	437	325	285	257
Biologists	268	325	334	230	201	181
Chemists	678	752	868	677	581	523
Geologists and geophysicists	119	118	131	173	148	133
Mathematicians and related	210	228	254	131	116	105
Physicists, astronomers and space scientists	174	181	208	216	190	171
Other physical scientists	47	65	88	130	106	93
Social scientists	612	645	784	747	623	561
Economists	336	374	426	375	296	266
Psychologists	131	137	206	208	180	162
Other	145	134	152	162	147	133
Computer specialists	287	370	599	1,674	1,522	1,368

1/ Data not available for 1979-81.

SOURCE: National Science Foundation, based on data of the Immigration and Naturalization Service, U. S. Dept. of Justice.

TABLE C-2. Immigrant scientists and engineers by country or region of last permanent residence and by major group: 1982

Country or region of last residence	Total, all groups	Engineers	Natural scientists	Mathematics and related, and computer specialists	Social scientists
All countries	12,188	7,880	1,756	1,805	747
Europe	3,013	1,952	398	410	253
Western Europe	1,994	1,239	305	290	160
Austria	38	24	7	4	3
Belgium	38	19	8	4	7
Denmark	17	12	-	4	1
France	106	57	19	23	7
German Federal Republic	175	114	34	14	13
Greece	104	70	15	12	7
Ireland	36	24	5	4	3
Italy	148	109	15	15	9
Netherlands	65	29	17	9	10
Norway	22	14	3	2	3
Spain	50	26	8	3	13
Sweden	65	44	5	8	8
Switzerland	57	34	14	4	5
United Kingdom	1,034	638	151	181	64
Other	39	25	4	3	7
Eastern Europe	1,019	713	93	120	93
Poland	169	97	17	6	49
USSR	666	483	60	100	23
Yugoslavia	27	17	3	2	5
Other	157	116	13	12	16
Asia	6,521	4,416	826	1,019	260
Near and Middle East	1,191	825	119	166	81
Iran	501	367	33	67	34
Iraq	39	29	7	3	-
Israel	235	122	31	58	24
Lebanon	89	66	9	13	1
Other Near and Middle East	327	241	39	25	22
Far East	5,330	3,591	707	853	179
Hong Kong	246	146	31	64	5
Mainland China	825	587	75	155	8
India	1,523	1,059	259	137	68
Pakistan	202	136	34	28	4
Japan	98	56	22	14	6
Korea	292	207	35	39	11

See footnotes at end of table.

TABLE C-2. Immigrant scientists and engineers by country or region of last permanent residence and by major group: 1982--con.

Country or region of last residence	Total, all groups	Engineers	Natural scientists	Mathematics and related, and computer specialists	Social scientists
Philippines	721	489	103	88	41
Taiwan	936	564	103	249	20
Other Far East	487	347	45	79	16
Africa	517	322	91	62	42
Egypt	165	118	33	10	4
Other Africa	352	204	58	52	38
North and Central America	1,522	840	319	236	127
Canada	727	391	146	143	47
Mexico	190	118	41	18	13
Other North and Central America	605	331	132	75	67
South America	452	270	73	56	53
Argentina	51	30	10	5	6
Bolivia	24	14	5	3	2
Brazil	29	15	5	4	5
Chile	34	16	8	5	5
Colombia	102	61	15	11	15
Ecuador	10	7	-	3	-
Peru	62	34	7	9	12
Venezuela	61	44	6	9	2
Other South America	79	49	17	7	6
All other areas	163	80	49	22	12
Australia	113	48	37	16	12
New Zealand	41	26	11	4	-
Other areas	9	6	1	2	-

- Data not available.
SOURCE: Immigration and Naturalization Service, U. S. Dept. of Justice, and National Science Foundation

TABLE C-3. Immigrant scientists and engineers by country or region of last permanent residence and by major group: 1983

Country or region of last residence	Total, all groups	Engineers	Natural scientists	Mathematics and related, and computer specialists	Social scientists
All countries	10,566	7,803	1,451	975	337
Europe	2,523	1,788	374	247	114
Western Europe	2,019	1,419	309	212	79
Austria	30	25	2	1	2
Belgium	28	19	8	-	1
Denmark	22	20	2	-	-
France	117	83	23	5	6
German Federal Republic	194	118	42	16	18
Greece	80	60	8	3	9
Ireland	33	18	7	6	2
Italy	110	84	15	10	1
Netherlands	57	39	11	4	3
Norway	22	18	2	1	1
Spain	54	36	9	5	4
Sweden	61	45	8	7	1
Switzerland	53	28	14	7	4
United Kingdom	1,107	799	145	142	21
Other	51	27	13	5	6
Eastern Europe	504	369	65	35	35
Poland	151	97	25	10	19
USSR	200	160	24	13	3
Yugoslavia	31	18	6	2	5
Other	122	94	10	10	8
Asia	5,748	4,434	695	537	82
Near and Middle East	1,179	975	88	94	22
Iran	556	471	31	47	7
Iraq	20	15	2	3	-
Israel	191	128	29	23	11
Lebanon	87	75	3	9	-
Other Near and Middle East	325	286	23	12	4
Far East	4,569	3,459	607	443	60
Hong Kong	238	180	24	31	3
Mainland China	341	249	49	41	2
India	1,398	1,040	255	84	19
Pakistan	183	152	22	6	3
Japan	97	74	12	10	1
Korea	263	206	37	13	7

See footnotes at end of table.

TABLE C-3. Immigrant scientists and engineers by country or region of last permanent residence and by major group: 1983--con.

Country or region of last residence	Total, all groups	Engineers	Natural scientists	Mathematics and related, and computer specialists	Social scientists
Philippines	614	502	65	40	7
Taiwan	1,117	807	109	188	13
Other Far East	318	249	34	30	5
Africa	456	319	88	32	17
Egypt	140	96	36	4	4
Other Africa	316	223	52	28	13
North and Central America	1,263	869	208	108	78
Canada	582	386	109	66	21
Mexico	209	172	22	7	8
Other North and Central America	472	311	77	35	49
South America	473	336	65	39	33
Argentina	44	31	8	4	1
Bolivia	20	14	-	4	2
Brazil	44	33	6	2	3
Chile	24	15	5	1	3
Colombia	79	51	16	7	5
Ecuador	21	16	1	1	3
Peru	67	49	5	4	9
Venezuela	93	68	13	9	3
Other South America	81	59	11	7	4
All other areas	101	55	21	12	13
Australia	68	37	13	7	11
New Zealand	24	15	4	3	2
Other areas	11	5	4	2	-

- Data not available.
SOURCE: Immigration and Naturalization Service, U. S. Dept. of Justice, and National Science Foundation

TABLE C-4. Immigrant scientists and engineers by country or region of last permanent residence and by major group: 1984

Country or region of last residence	Total, all groups	Engineers	Natural scientists	Mathematics and related, and computer specialists	Social scientists
All countries	9,502	7,281	1,173	732	316
Europe	2,514	1,834	353	211	116
Western Europe	2,017	1,475	284	190	68
Austria	51	38	10	-	3
Belgium	42	31	6	3	2
Denmark	24	22	1	-	1
France	127	82	24	14	7
German Federal Republic	267	181	55	12	19
Greece	87	67	10	3	7
Ireland	34	27	3	3	1
Italy	128	108	8	10	2
Netherlands	49	31	13	4	1
Norway	19	18	1	-	-
Spain	45	31	7	4	3
Sweden	68	56	8	3	1
Switzerland	48	29	15	1	3
United Kingdom	1,001	734	122	131	14
Other	27	20	1	2	4
Eastern Europe	497	359	69	21	48
Poland	205	141	27	8	29
USSR	114	90	12	5	7
Yugoslavia	44	33	7	1	3
Other	134	95	23	7	9
Asia	4,871	3,943	500	349	79
Near and Middle East	1,191	1,004	92	67	28
Iran	578	495	42	33	8
Iraq	26	21	4	1	-
Israel	162	109	25	18	10
Lebanon	93	83	3	3	4
Other Near and Middle East	332	296	18	12	6
Far East	3,680	2,939	408	282	51
Hong Kong	176	144	8	19	5
Mainland China	254	213	23	16	2
India	963	779	142	37	5
Pakistan	159	137	16	5	1
Japan	71	43	17	7	4
Korea	184	152	9	17	6

See footnotes at end of table.

TABLE C-4. Immigrant scientists and engineers by country or region of last permanent residence and by major group: 1984--con.

Country or region of last residence	Total, all groups	Engineers	Natural scientists	Mathematics and related, and computer specialists	Social scientists
Philippines	715	594	67	42	12
Taiwan	874	653	94	117	10
Other Far East	284	224	32	22	6
Africa	372	271	65	25	11
Egypt	113	81	28	1	3
Other Africa	259	190	37	24	8
North and Central America	1,152	819	172	106	55
Canada	561	392	91	61	17
Mexico	147	114	13	10	10
Other North and Central America	444	313	68	35	28
South America	481	335	63	32	51
Argentina	43	27	12	2	2
Bolivia	20	13	3	-	4
Brazil	54	32	10	8	4
Chile	24	13	5	2	4
Colombia	84	55	12	4	13
Ecuador	18	15	1	1	1
Peru	59	46	2	6	5
Venezuela	115	87	11	6	11
Other South America	64	47	7	3	7
All other areas	112	79	20	9	4
Australia	81	56	12	9	4
New Zealand	20	12	8	-	-
Other areas	11	11	-	-	-

- Data not available.
SOURCE: Immigration and Naturalization Service, U. S. Dept. of Justice, and National Science Foundation

TABLE C-5. Immigrant scientists and engineers by country or region of birth and by major group: 1982

Country or region of birth	Total, all groups	Engineers	Natural scientists	Mathematics and related, and computer specialists	Social scientists
All countries	12,188	7,880	1,756	1,805	747
Europe	2,924	1,882	386	401	255
Western Europe	1,677	1,013	261	255	148
Austria	20	8	8	3	1
Belgium	29	11	7	6	5
Denmark	19	14	1	3	1
France	71	42	10	14	5
German Federal Republic	121	78	21	14	8
Greece	92	60	13	12	7
Ireland	44	30	7	5	2
Italy	59	33	13	5	8
Netherlands	59	26	18	6	9
Norway	22	15	1	2	4
Spain	38	19	8	2	9
Sweden	54	38	4	8	4
Switzerland	47	31	7	5	4
United Kingdom	956	581	137	166	72
Other	46	27	6	4	9
Eastern Europe	1,247	869	125	146	107
Poland	214	123	24	12	55
USSR	768	562	67	112	27
Yugoslavia	31	19	5	2	5
Other	234	165	29	20	20
Asia	6,929	4,703	890	1,067	269
Near and Middle East	1,218	857	116	165	80
Iran	613	452	46	77	38
Iraq	74	51	12	11	-
Israel	140	71	12	37	20
Lebanon	109	86	9	13	1
Other Near and Middle East	282	197	37	27	21
Far East	5,711	3,846	774	902	189
Hong Kong	177	99	29	44	5
Mainland China	1,066	743	114	196	13
India	1,701	1,189	280	158	74
Pakistan	231	152	44	32	3
Japan	90	49	23	13	5
Korea	298	209	36	40	13

See footnotes at end of table.

TABLE C-5. Immigrant scientists and engineers by country or region of birth and by major group: 1982--con.

Country or region of birth	Total, all groups	Engineers	Natural scientists	Mathematics and related, and computer specialists	Social scientists
Philippines	732	497	105	89	41
Taiwan	839	501	86	233	19
Other Far East	577	407	57	97	16
Africa	577	352	102	83	40
Egypt	195	134	41	15	5
Other Africa	382	218	61	68	35
North and Central America	1,127	593	247	174	113
Canada	340	146	79	81	34
Mexico	171	105	40	15	11
Other North and Central America	616	342	128	78	68
South America	490	283	88	62	57
Argentina	53	30	12	5	6
Bolivia	24	14	5	3	2
Brazil	32	16	6	4	6
Chile	36	17	8	6	5
Colombia	109	63	17	14	15
Ecuador	13	8	1	3	1
Peru	65	35	9	9	12
Venezuela	64	46	7	9	2
Other South America	94	54	23	9	8
All other areas	141	67	43	18	13
Australia	88	34	29	12	13
New Zealand	43	25	14	4	-
Other areas	10	8	-	2	-

- Data not available.
SOURCE: Immigration and Naturalization Service, U. S. Dept. of Justice, and National Science Foundation

TABLE C-6. Immigrant scientists and engineers by country or region of birth and by major group: 1983

Country or region of birth	Total, all groups	Engineers	Natural scientists	Mathematics and related, and computer specialists	Social scientists
All countries	10,566	7,803	1,451	975	337
Europe	2,342	1,648	350	233	111
Western Europe	1,684	1,168	261	186	69
Austria	16	11	3	2	-
Belgium	20	13	5	1	1
Denmark	22	19	3	-	-
France	76	53	12	4	7
German Federal Republic	139	83	32	7	17
Greece	71	51	7	3	10
Ireland	39	17	12	9	1
Italy	69	49	12	7	1
Netherlands	59	40	13	2	4
Norway	21	18	2	1	-
Spain	40	22	10	6	2
Sweden	56	46	4	5	1
Switzerland	36	26	7	3	-
United Kingdom	964	688	127	130	19
Other	50	29	12	5	4
Eastern Europe	658	480	89	47	42
Poland	186	119	35	11	21
USSR	255	204	29	17	5
Yugoslavia	35	21	7	2	5
Other	182	136	18	17	11
Asia	6,151	4,723	764	566	98
Near and Middle East	1,229	1,015	94	93	27
Iran	695	592	38	53	12
Iraq	47	33	8	5	1
Israel	109	71	15	13	10
Lebanon	114	100	6	8	-
Other Near and Middle East	264	219	27	14	4
Far East	4,922	3,708	670	473	71
Hong Kong	161	109	25	24	3
Mainland China	601	464	73	62	2
India	1,573	1,168	287	98	20
Pakistan	174	149	15	7	3
Japan	83	62	11	9	1
Korea	276	218	37	14	7

See footnotes at end of table.

TABLE C-6. Immigrant scientists and engineers by country or region of birth and by major group: 1983--con.

Country or region of birth	Total, all groups	Engineers	Natural scientists	Mathematics and related, and computer specialists	Social scientists
Philippines	644	526	67	42	9
Taiwan	1,011	713	105	179	14
Other Far East	399	299	50	38	12
Africa	537	372	101	46	18
Egypt	164	117	38	4	5
Other Africa	373	255	63	42	13
North and Central America	995	692	157	79	67
Canada	282	180	55	37	10
Mexico	189	157	19	6	7
Other North and Central America	524	355	83	36	50
South America	457	321	61	41	34
Argentina	51	35	8	6	2
Bolivia	19	13	-	4	2
Brazil	27	17	6	2	2
Chile	28	18	4	3	3
Colombia	83	54	17	7	5
Ecuador	19	13	1	1	4
Peru	65	51	2	3	9
Venezuela	69	50	10	7	2
Other South America	96	70	13	8	5
All other areas	83	46	18	10	9
Australia	50	28	9	6	7
New Zealand	28	16	7	3	2
Other areas	6	3	2	1	-

- Data not available.
SOURCE: Immigration and Naturalization Service, U. S. Dept. of Justice, and National Science Foundation

TABLE C-7. Immigrant scientists and engineers by country or region of birth and by major group: 1984

Country or region of birth	Total, all groups	Engineers	Natural scientists	Mathematics and related, and computer specialists	Social scientists
All countries	9,502	7,281	1,173	732	316
Europe	2,297	1,667	326	195	109
Western Europe	1,557	1,121	225	160	51
Austria	18	14	3	-	1
Belgium	26	16	6	3	1
Denmark	26	23	1	1	1
France	81	57	12	7	5
German Federal Republic	139	87	30	10	12
Greece	85	61	11	5	8
Ireland	44	28	4	10	2
Italy	47	33	10	4	-
Netherlands	48	33	9	5	1
Norway	17	17	-	-	-
Spain	33	20	8	3	2
Sweden	63	53	7	2	1
Switzerland	36	27	7	1	1
United Kingdom	859	628	114	105	12
Other	35	24	3	4	4
Eastern Europe	740	546	101	35	58
Poland	269	187	37	12	33
USSR	189	148	19	11	11
Yugoslavia	55	38	12	1	4
Other	227	173	33	11	10
Asia	5,338	4,296	570	388	84
Near and Middle East	1,289	1,074	107	78	30
Iran	757	638	62	44	13
Iraq	62	53	7	2	-
Israel	122	82	16	15	9
Lebanon	115	100	5	5	5
Other Near and Middle East	233	201	17	12	3
Far East	4,049	3,222	463	310	54
Hong Kong	147	116	11	16	4
Mainland China	433	369	38	23	3
India	1,081	879	156	42	4
Pakistan	187	151	23	9	4
Japan	72	45	17	7	3
Korea	197	163	9	18	7

See footnotes at end of table.

TABLE C-7. Immigrant scientists and engineers by country or region of birth and by major group: 1984--con.

Country or region of birth	Total, all groups	Engineers	Natural scientists	Mathematics and related, and computer specialists	Social scientists
Philippines	743	618	69	44	12
Taiwan	806	583	94	120	9
Other Far East	383	298	46	31	8
Africa	450	328	72	40	10
Egypt	132	98	28	4	2
Other Africa	318	230	44	36	8
North and Central America	867	616	124	70	57
Canada	248	164	42	28	14
Mexico	140	112	11	7	10
Other North and Central America	479	340	71	35	33
South America	466	317	63	34	52
Argentina	52	34	13	2	3
Bolivia	22	17	2	-	3
Brazil	35	20	6	5	4
Chile	29	14	8	2	5
Colombia	89	59	11	5	14
Ecuador	17	14	1	1	1
Peru	68	47	5	9	7
Venezuela	83	62	7	6	8
Other South America	71	50	10	4	7
All other areas	84	57	18	5	4
Australia	48	35	7	3	3
New Zealand	23	11	10	1	1
Other areas	13	11	1	1	-

- Data not available.
SOURCE: Immigration and Naturalization Service, U. S. Dept. of Justice, and National Science Foundation

TABLE C-8. Migration patterns of scientists and engineers who became immigrants in 1984

Country or region of last permanent residence	Total immigrants	Birthplace and last residence the same	Birthplace and last residence differ, by region of birth								
			Total	Western Europe	Eastern Europe	Near and Middle East	Far East	Africa	North and Central America	South America	All other areas
All countries	9,502	7,565	1,937	242	272	350	740	154	101	57	19
Percent distribution	100.0	79.6	20.4	2.5	2.9	4.4	7.1	1.6	1.1	.6	.2
Europe	2,514	1,783	731	79	190	195	144	71	29	17	6
Western Europe	2,017	1,315	702	76	172	194	139	71	29	16	5
Austria	51	8	43	-	39	3	1	-	-	-	-
Belgium	42	23	19	7	3	3	4	2	-	-	-
Denmark	24	23	1	-	-	-	-	-	-	-	-
France	127	68	59	11	6	22	10	6	2	2	-
German Federal Republic	267	126	141	20	48	41	28	2	-	1	1
Greece	87	73	14	-	3	10	-	1	-	-	-
Ireland	34	30	4	3	-	-	1	-	-	-	-
Italy	128	32	96	2	58	31	3	1	-	1	-
Netherlands	49	35	14	3	-	2	6	2	-	1	-
Norway	19	15	4	1	1	1	1	-	-	-	-
Spain	45	28	17	-	3	4	-	-	7	3	-
Sweden	68	60	8	2	3	3	-	-	-	-	-
Switzerland	48	32	16	8	2	2	2	1	-	1	-
United Kingdom	1,001	737	264	18	6	70	83	56	20	7	4
Other	27	25	2	-	-	2	-	-	-	-	-
Eastern Europe	497	468	29	3	18	1	5	-	-	1	1
Poland	205	199	6	1	5	-	-	-	-	-	-
USSR	114	105	9	1	5	1	2	-	-	-	-
Yugoslavia	44	39	7	1	4	-	1	-	-	-	-
Other	134	127	7	-	4	-	2	-	-	1	-
Asia	4,871	4,248	623	36	40	120	376	40	1	7	1
Near and Middle East	1,350	1,098	252	24	36	106	55	23	1	6	-
Iran	578	571	7	-	-	3	3	1	-	-	-
Iraq	26	23	3	-	1	1	1	-	-	-	-
Israel	162	106	56	2	33	10	-	7	-	4	-
Lebanon	93	82	11	-	-	7	-	3	1	-	-
Other Near and Middle East	491	316	175	22	2	85	51	12	-	2	-
Far East	3,521	3,150	371	12	4	14	321	17	-	1	2
Hong Kong	176	110	66	4	-	-	62	-	-	-	-
Mainland China	254	228	26	-	-	-	26	-	-	-	-
India	963	910	55	1	-	2	35	16	-	1	-
Pakistan	159	121	38	2	-	9	27	-	-	-	-
Japan	71	65	6	-	-	1	5	-	-	-	-

See footnotes at end of table.

TABLE C-8. Migration patterns of scientists and engineers who became immigrants in 1984--con.

Country or region of last permanent residence	Total immigrants	Birthplace and last residence the same	Birthplace and last residence differ, by region of birth								
			Total	Western Europe	Eastern Europe	Near and Middle East	Far East	Africa	North and Central America	South America	All other areas
Korea	184	184	-	-	-	-	-	-	-	-	-
Philippines	715	709	6	-	-	1	5	-	-	-	-
Taiwan	874	757	117	-	1	-	116	-	-	-	-
Other Far East	125	68	57	5	3	1	45	-	-	-	2
Africa	372	296	76	16	8	2	32	12	4	1	1
Egypt	113	108	5	1	1	1	-	1	-	-	1
Other Africa	259	188	71	15	7	1	32	11	4	1	-
North and Central America	1,152	766	386	85	24	27	158	23	50	15	3
Canada	561	239	322	75	24	35	152	23	10	9	3
Mexico	147	138	9	3	-	-	2	-	3	1	-
Other North and Central America	444	389	55	7	-	2	4	-	37	5	-
South America	481	409	72	12	3	4	16	4	16	16	1
Argentina	43	42	2	1	-	-	-	-	-	1	-
Bolivia	20	17	3	-	-	-	1	-	2	-	-
Colombia	84	81	3	-	-	-	-	-	1	2	-
Brazil	54	33	21	2	1	1	12	1	2	2	-
Chile	24	24	-	-	-	-	-	-	-	-	-
Ecuador	18	17	1	-	-	-	1	-	-	1	-
Peru	59	58	1	-	-	-	1	-	-	-	-
Venezuela	115	80	35	8	2	2	-	3	9	10	1
Other South America	64	53	11	1	-	1	4	-	4	1	-
All other areas	111	63	48	14	6	2	14	4	1	1	6
Australia	81	41	40	12	5	2	10	4	1	1	5
New Zealand	20	16	4	2	-	-	1	-	-	-	1
Other areas	11	6	5	-	2	-	3	-	-	-	-

- Data not available.
SOURCE: Immigration and Naturalization Service, U. S. Dept. of Justice, and National Science Foundation

TABLE C-9. Immigrant scientists and engineers by state of intended residence and major group: 1984

State of intended residence	Total, all groups	Engineers	Natural scientists	Mathematics and related and computer specialists	Social scientists
All States	9,502	7,281	1,173	732	316
New England	561	433	67	37	24
Connecticut	156	113	24	14	5
Maine	6	3	1	1	1
Massachusetts	327	256	38	20	13
New Hampshire	34	28	2	1	3
Rhode Island	25	22	1	1	1
Vermont	13	11	1	-	1
Middle Atlantic	1,819	1,326	251	165	77
New Jersey	562	398	65	78	21
New York	999	748	144	65	42
Pennsylvania	258	180	42	22	14
East North Central	1,162	869	184	74	35
Illinois	533	414	62	35	22
Indiana	75	52	19	3	1
Michigan	242	187	34	17	4
Ohio	235	167	45	17	6
Wisconsin	77	49	24	2	2
West North Central	262	184	47	24	7
Iowa	26	14	6	5	1
Kansas	31	23	4	4	-
Minnesota	91	65	11	10	5
Missouri	74	57	13	4	-
Nebraska	21	14	6	-	1
North Dakota	9	3	5	1	-
South Dakota	10	8	2	-	-
South Atlantic	1,129	850	144	82	53
Delaware	23	13	7	2	1
District of Columbia	30	17	5	3	5

See footnotes at end of table.

TABLE C-9. Immigrant scientists and engineers by state of intended residence and major group: 1984--con.

State of intended residence	Total, all groups	Engineers	Natural scientists	Mathematics and related and computer specialists	Social scientists
Florida	420	332	34	32	22
Georgia	104	80	13	8	3
Maryland	253	190	37	14	12
North Carolina	78	53	20	5	-
South Carolina	43	34	6	3	-
Virginia	160	121	18	13	8
West Virginia	18	10	4	2	2
East South Central	117	92	18	4	3
Alabama	37	32	3	1	1
Kentucky	25	20	5	-	-
Mississippi	11	8	2	-	1
Tennessee	44	32	8	3	1
West South Central	896	689	116	76	15
Arkansas	10	5	2	2	1
Louisiana	126	93	16	10	7
Oklahoma	92	71	7	14	-
Texas	668	520	91	50	7
Mountain	391	282	72	25	12
Arizona	168	129	21	15	3
Colorado	116	83	28	2	3
Idaho	5	4	1	-	-
Montana	5	3	1	-	1
Nevada	25	21	2	2	-
New Mexico	23	11	8	1	3
Utah	44	27	10	5	2
Wyoming	5	4	1	-	-
Pacific	3,093	2,497	267	242	87
Alaska	16	12	2	1	1
California	2,849	2,299	242	227	81
Hawaii	54	41	6	7	-
Oregon	69	62	3	2	2

See footnotes at end of table.

TABLE C-9. Immigrant scientists and engineers by state of intended residence and major group: 1984--con.

State of intended residence	Total, all groups	Engineers	Natural scientists	Mathematics and related and computer specialists	Social scientists
Washington.....	105	83	14	5	3
Outlying areas.....	72	59	7	3	3

- Data not available.
SOURCE: Immigration and Naturalization Service, U. S. Dept. of Justice, and National Science Foundation

TABLE C-10. Immigrant scientists and engineers by sex, age group, and region of last permanent residence: 1984

Broad occupation, sex, and age group	Region of last permanent residence								
	Total	Western Europe	Eastern Europe	Near and Middle East	Far East	Africa	North and Central America	South America	All other areas
All occupational groups...	9,502	2,017	497	1,350	3,521	372	1,152	481	111
Male, total.....	8,418	1,815	352	1,255	3,105	340	1,041	407	102
Under 30.....	2,931	582	74	557	1,101	112	331	144	29
30-44.....	4,410	1,018	205	571	1,594	199	562	198	63
45 and over.....	1,077	215	73	127	410	29	148	65	10
Female, total.....	1,084	202	145	95	416	32	111	74	9
Under 30.....	480	87	46	56	187	16	50	33	5
30-44.....	519	105	77	37	192	13	53	38	4
45 and over.....	85	10	22	2	37	3	8	3	-
Scientists, total.....	2,221	542	138	209	719	101	333	146	33
Male, total.....	1,601	420	63	165	493	83	258	94	25
Under 30.....	440	132	15	49	135	22	64	20	3
30-44.....	1,010	261	38	99	311	57	161	62	21
45 and over.....	151	27	10	17	47	4	33	12	1
Female, total.....	620	122	75	44	226	18	75	52	8
Under 30.....	245	52	23	16	88	9	30	23	4
30-44.....	331	64	41	27	120	8	40	27	4
45 and over.....	44	6	11	1	18	1	5	2	-
Engineers, total.....	7,281	1,475	359	1,141	2,802	271	819	335	78
Male, total.....	6,817	1,395	289	1,090	2,612	257	783	313	77
Under 30.....	2,491	450	59	508	966	90	267	124	26
30-44.....	3,400	757	167	472	1,283	142	401	136	42
45 and over.....	926	188	63	110	363	25	115	53	9
Female, total.....	464	80	70	51	190	14	36	22	1
Under 30.....	235	35	23	40	99	7	20	10	1
30-44.....	188	41	36	10	72	5	13	11	-
45 and over.....	41	4	11	1	19	2	3	1	-

- No amount available
SOURCE: Immigration and Naturalization Service, U. S. Dept. of Justice, and National Science Foundation

other science resources publications

Science Resources Studies Highlights

R&D Funds

	NSF No.	Price
"15% Increase in Federal R&D Funds Proposed in 1986 Budget, Mostly for Defense"	85-322	-----
"Federal Emphasis on Defense is Major Factor in 1983 Increase in Industrial R&D Performance"	85-328	-----
"Federal Academic R&D Funds Continue Strong Growth Through 1985"	85-314	-----
"Academic R&D Funding Increased 7% in FY 1983, Higher Gains Expected Through 1985"	85-306	-----
"7% Real Growth Expected in National R&D Expenditures in 1985: Defense and Economy Major Factors"	85-304	-----

S/E Personnel

	NSF No.	Price
"Universities Report Research Equipment Shortages Are Most Severe in the Physical Sciences and Engineering"	85-320	-----
"All Fields Share in 3% Growth in Academic S/E Employment"	85-317	-----
"Graduate S/E Enrollment Rose 4% in 1983, With Major Gains in Computer Science and Engineering"	85-313	-----
"Ph. D. Scientists and Engineers Shift to Industrial Employment and Related Activities"	85-301	-----

Detailed Statistical Tables

R&D Funds

	NSF No.	Price
Academic Science/ Engineering: R&D Funds, Fiscal Year 1983	85-308	-----
Federal Funds for Research and Development, Fiscal Years 1983, 1984, and 1985, Volume XXXIII	84-336	-----
Research and Development in Industry: 1982. R&D Funds, 1982; Scientists and Engineers, January 1983	84-325	-----

S/E Personnel

	NSF No.	Price
Academic Science/ Engineering: Scientists and Engineers, January 1984	85-316	-----
U.S. Scientists and Engineers: 1982, Volume 2	85-307	-----
Academic Science/ Engineering: Graduate Enrollment and Support, Fall 1983	85-300	-----

Reports

R&D Funds

	NSF No.	Price
Federal Support to Universities, Colleges, and Selected Nonprofit Institutions, Fiscal Year 1983	85-321	-----
Federal R&D Funding by Budget Function: Fiscal Years 1984-86	85-319	-----
A Comparative Analysis of Information on National Industrial R&D Expenditures	85-311	-----
Federal Funds for Research and Development, Fiscal Years 1982, 1983, and 1984, Volume XXXII	84-326	-----
Trends in Small Companies' R&D Expenditures	84-324	-----

S/E Personnel

	NSF No.	Price
Federal Scientific and Technical Personnel: Numbers and Characteristics, 1973 and 1983	85-312	-----
Scientific and Technical Work Force in Trade and Regulated Industries Shows Major Shift in Occupational Composition: 1979-82	84-323	-----
Projected Response of the Science, Engineering, and Technical Labor Market to Defense and Nondefense Needs: 1982-87	84-304	-----
Women and Minorities in Science and Engineering	84-300	-----

Composite

	NSF No.	Price
International Science and Technology Data Update	-----	-----
Comparison of Scientific and Technical Personnel Trends in the United States, France, West Germany, and the United Kingdom Since 1970	84-335	-----
Resources Supporting Scientific and Engineering Activities at Historically Black Colleges and Universities	84-332	-----
Science and Technology Data Book	84-331	-----
Academic Science/ Engineering: 1972-83. R&D Funds, Federal Support, Scientists and Engineers, Graduate Enrollment and Support	84-322	-----
National Patterns of Science and Technology Resources: 1984	84-311	-----
A Guide to NSF Science/Engineering Resources Data	84-301	-----

BEST COPY AVAILABLE